

# 1

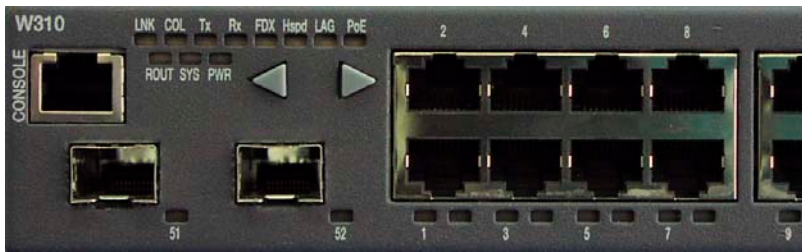
**WARNING:** Only trained and qualified personnel should be allowed to install or replace this equipment.

Unpack the hardware and make your connections.

- a. Unpack the W310 from its shipping box.
- b. Check the W310 package contents for the following:
  - one W310
  - one AC power cord
  - one RJ45 to DB9 serial adapter cable
  - one CD that contains the user documentation
  - this setup guide

Also, you should have at least one W110 Light Access Point in a separate package. The W110 comes with a Quick Start Guide and a CD.

- c. Attach the AC power cord to the Power jack on the W310 rear panel. All front panel LEDs will illuminate briefly. Once the boot up and self-tests are complete, the LED labeled PWR will turn solid green.
- d. Connect the Ethernet cables from your W310 port(s) to the W110's LAN port or a wired Ethernet network station. Start with port 1 on the W310 to make your W110 connections. Once you make the connection(s), the associated Link LED will light. The Link LEDs are located underneath the ports.



Connect the Console cable to the W310 Console port. (Step 2)

Port 1 is located in the bottom left hand corner. The associated LINK LEDs are located directly below each port.

Connect the Ethernet cable from the W310 port to the W110 LAN port



# 1

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e. Make sure the W310 and W110 are communicating properly. To verify communication, do the following:

- **For the W310** - The PoE (Power over Ethernet) LED for the port that is connected to the W110 will turn solid green indicating power is enabled and it is delivering power. If no W110 is connected (or detected), the PoE LED will flash.
- **For the W110** - The Ethernet LED will either be solid yellow or green indicating that there is a 10BaseT or 100BaseT connection.

f. Now you are ready to assign a new IP address to the W310.

# 2

Assign a network IP address to the W310.

- a. Connect the Console cable to the port labeled Console on the W310 front panel (see above).
- b. Connect the other end of the cable to a PC or terminal.
- c. Start your terminal communication program (such as Microsoft® Windows' HyperTerminal).
- d. Configure the serial port settings for using a terminal or terminal emulator as follows:
  - Baud Rate - 9600 bps
  - Data Bits - 8 bits
  - Parity - None
  - Stop Bit - 1
  - Flow Control - None
  - Terminal Emulation - VT-100

**Example:** In HyperTerminal, you are prompted for the COM Port configuration settings when you first create the connection to the W310.

- e. When you are prompted for a Login Name, enter the default login: **root**.
- f. When you are prompted for a password, enter the default user level password: **root**. You are now in Supervisor Level.
- g. At the CLI (W310-1>#) prompt, type:

```
set interface inband <vlan> <ip_address> <netmask>
```

- Replace <vlan>, <ip\_address> and <netmask> with the VLAN set to 1, the IP address and subnet mask of the switch.

# 2

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- h. Press **Enter** to save the VLAN, IP address and net mask.
- i. At the prompt, type **reset** and press **Enter** to reset the W310 for the settings to take effect. After the reset, log in again as described above.
- j. (Optionally) At the prompt, you can add a default route to the IP routing table by typing the following:

```
set ip route <dest> <gateway>
— where:
  <dest> is the IP address of the network or specific host to be added
  <gateway> is the IP address of the static gateway
```

- k. Press **Enter** to save the destination and gateway IP addresses.
- l. Make sure you have the most recent images for the following:
  - W310 Device Manager image
  - W310 firmware image
  - W110 LAP image

Use the `dir` command to view the W310 image version numbers:

```
W310-1 (super) # dir
```

- m. If you need to download newer images to the W310 and W110, use the following commands:
  - *For the W310:* `copy tftp SW_image <software_image> EW_archive <embedded_web_archive> <TFTP-server-IP-address> 1`
    - Where:
      - `<software_image>` is the W310 software image; `<embedded_web_archive>` is the W310 web interface software;
      - `<TFTP-server-IP-address>` is the IP address of the TFTP server; and `1` is the required default module number for the W310.
  - *For the W110:* `copy tftp LAP_image LAP <image_filename> <ip_address_tftp_server> bank-b`
    - Where:
      - `<image_filename>` is the W110 software image;
      - `<TFTP-server-IP-address>` is the IP address of the TFTP server; and `bank-b` is the required default boot bank.

- n. Now you can create a Service Set Identifier (SSID) for your W110s. The SSID is the wireless network name.

# 3

Use the CLI to create SSIDs (wireless network name). A default SSID exists for the W310 named `default`.

Use the `ssid` CLI command to create a new SSID. At the command prompt type the following in order to create a new SSID:

```
ssid <name>
```

- Use up to 32 ASCII characters for the name. For example, use identifiers such as `engineering` or `building1`. For example:

```
W310-1 (super) # ssid building1
W310-1 (super/SSID building1) #
```

## ⇒ NOTE:

You can edit the "default" SSID, if necessary, by selecting any of the parameters. However, you cannot delete the default SSID.

# 4

Set the wireless network security mode. This is done with the context of the SSID you created.

Use the `security-mode` CLI command to set the security mode. At the command prompt type the following:

```
security-mode {none | dot1x | wep | wpa | wpa-psk}
```

- Configure the security mode for one of the following:
  - **none** - no security. This is the default entry.
  - **dot1x** - 802.1x security
  - **wep** - Wired Equivalent Privacy (WEP) encryption keys.
  - **wpa** - WiFi Protected Access (WPA) that calls for 802.1x unique keys
  - **wpa-psk** - WiFi Protected Access Pre Shared Key

For example, to set the security mode to WEP:

```
W310-1 (super/SSID building1) # security-mode wep
Done!
W310-1 (super/SSID building1) #
```

# 4

(cont.)

The following table describes parameters you must also set when using either WEP or WPA as the security mode.

**For WEP:** Wired Equivalent Privacy is a security protocol for wireless local area networks (WLANs) defined in the 802.11b standard. WEP is designed to provide the same level of security as that of a wired LANs.

To set the WEP key(s). The default key is 1. Type the following:

```
wep-encryption-key <index> <key>
```

Where:

- **index** is for the encryption key - 1, 2, 3 or 4
- **key** is for the encryption string. The supported key lengths are:
  - Up to five (5) characters for 64 bit
  - Up to 13 characters for 128 bit
  - Up to 16 characters for 152 bit

For example:

```
W310-1 (super/SSID building1) # wep-encryption-key  
1 AAAA  
Done!
```

To set the effective WEP key, use the following command. The effective WEP key is the key in effect for the wireless network (which you previously configured).

```
wep-encryption-key-effective <index>
```

Where:

- **index** is the encryption key (1, 2, 3, or 4) that will be used to encrypt data that is sent via the wireless interface. The default value is 1.

For example:

```
W310-1 (super/SSID building1) #  
wep-encryption-key-effective 1  
Done!
```

*Continued*

# 4

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**For WPA:** WiFi Protected Access (WPA) is a replacement for WEP that provides the following:

- Improved packet encryption using the Temporal Key Integrity Protocol (TKIP) and the Message Integrity Check (MIC).
- Per user, per session dynamic encryption keys.
- Dynamic key redistribution.
- Client/server mutual authentication.

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**Important:** WPA uses 801.1x authentication to communicate with a RADIUS server and authenticate clients. You must setup a RADIUS server in order to use this security mode.

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To set the encryption rekeying interval in seconds for WPA, use the following command.

```
dynamic-rekeying-interval <interval>
```

Where:

- **interval** determines how often a client's encryption key is changed. Use a value from 60 to 65535 seconds. The recommended default value is 3600 seconds. For example:  
W310-1(super/SSID building1)# **dynamic-rekeying-interval**  
**900**  
Done!

*Optionally*, you can set the following options using the CLI:

- Set whether you want to enable **Broadcast**. When enabled, the SSID is included in the beacon broadcast. The default is disabled. The command is shown below.

```
broadcast
```

For example, if you want to enable broadcast for SSID building 1:

```
W310-1 (super/SSID building1) # broadcast transmit  
Done!
```

- Set to enable **Closed System**. When enabled, clients must have the same SSID as the Access Point in order to communicate. For example, a client set to "Any" will not be able to associate with an Access Point if it has an SSID named "Engineering". The default is disabled.

```
closed-system
```

For example if you want to enable closed system for SSID building1:

```
W310-1 (super/SSID building1) # closed-system  
not-accept-any  
Done!
```

# 4

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- Set the **VLAN** for the SSID. By default, the VLAN is set to the recommended default of “by-user-group-table”. Use a value between 1 and 3072 or keep the default. Use the following command.

```
vlan <vlan> | by-user-group-table
```

For example:

```
W310-1(super/SSID building1)# vlan 8  
Done!
```

# 5

Now apply the SSID to the LAP ports. You must assign the SSID to each W110 port separately.

```
ssid <name>  
lap <port-number>  
radio-card-802.11 <type> <location>
```

- For example, to apply an SSID to a specific W310 LAP port:

```
W310-1(super/SSID building1)# exit  
W310-1(super) # lap port-01  
W310-1(super/lap port-01) # radio-card-802.11  
802.11g first-slot  
W310-1(super/lap port-01/802.11g first-slot) # ssid  
building1  
This command will reboot the LAP(s) - do you want to  
continue (Y/N)?  
Done!
```

- For example, to apply an SSID to all W310 LAP ports:

```
W310-1(super/SSID building1)# ssid2lap  
This command will reboot the LAP(s) - do you want to  
continue (Y/N)?  
Done!
```

To list all the SSIDs you have created, type **ssid** followed by clicking the **Tab** key twice.

# 6

Configure the mobility master gateway parameters. The master gateway contains the mobility gateway database.

Use the **wireless-domain-servers** CLI command to configure the master and optionally the backup gateways. At the command prompt type the following:

```
wireless-domain-servers <master-ip-address>  
[<backup-ip-address>] <domain_name>
```

— Enter the IP address for the master gateway and *optionally* enter an IP address for the backup server.

# 6

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— Enter a domain name for the wireless network.

For example:

```
W310-1(super/lap port-01/802.11g first-slot)# exit
```

```
W310-1(super/lap port-01)# exit
```

```
W310-1 (super) # wireless-domain-servers  
192.168.49.75 192.168.49.88 rnd
```

Done!

⇒ **NOTE:**

You must exit from the SSID name in order to set the master and backup gateway parameters as shown in the example above.

# 7

Copy the running configuration to the startup configuration. This saves and re-executes the settings specified in this procedure.

```
W310-1(super)# copy running startup
```

```
Beginning copy operation ...
```

This operation may take up to 20 seconds.

Please refrain from any other operation during this time.

For more information, use 'show copy status' command

```
W310-1(super)
```

# 8

For more information on advanced configuration features, it is recommended that you reference the *W310 Command Line Interface Guide* and the *W310 Installation and Configuration User's Guide* for detailed descriptions and procedures.

- Set policy.
- Make changes to the W110 settings.
- Configure the RADIUS server settings.
- Change the security or authentication method of the wireless network.
- Configure User Groups and Access Point Groups.